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10/625,211	07/22/2003	Franz Groll	71066	8369

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EXAMINER

RAPP, CHAD

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/625,211

Applicant(s)

GROLL ET AL.

Examiner

Chad Rapp

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/21/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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1. Claims 1-30 are presented for examination.

***Claim Objections***

2. Claims 4 and 16-22 are objected to because of the following informalities:

As to claim 4, line 2 “at at” should be changed to “to at”

As to claim 16, line 2 “(soft PLC) is this to be considered a limitation. Appropriate correction is required.

***Drawings***

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description:

In paragraph number (0053), line 3 “interpreter 22” there is no at reference number 22 in figure 4.

In paragraph number (0060), line 4 “the output area 13” there is not a reference number 13 in figure 6.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

5. The disclosure is objected to because of the following informalities:

Paragraph number (0047), line 1 "PLC 12" should be changed to "PLC 11" to conform with figure 3.

Paragraph number (0052), line 1 "real time information server 19" should be changed to "real time information server 9" to conform with figure 4.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 19 and 24, the phrase "for example" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). See claim 19 which states "e.g." which is the same as "for example".

Regarding claims 1-30, the phrase "or the like" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or the like"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d). See claims 1, 10 and 15.

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Regarding claims 1-30, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). See claims 1 and 15.

As to claim 8, line 2 "the real time data bank" should be changed to "a real time data bank". There is insufficient antecedent basis for this limitation in the claim.

As to claim 10, lines 1-2 "the process data stream" should be changed to "a process data stream". There is insufficient antecedent basis for this limitation in the claim.

As to claim 25, line 2 "the field bus system" should be changed to "a field bus system".

There is insufficient antecedent basis for this limitation in the claim.

8. If the above problems are fixed claims 22 and 23 would be objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10 Claims 1-4, 6-8 and 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolchinsky in view of Schwenke et al.

Kolchinsky teaches the claimed invention (claim 1) substantially as claimed including a method of controlling a plant comprising:

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- a. At least one programmable logic controller is taught as virtual processor(col. 2 lines 20-21);
- b. Wherein historical process data are fed into the PLC is taught as virtual processor processes data stored on the matrix array(abstract);
- c. Historical process data are processed by a PLC program logic is taught as virtual processor processes data stored on the matrix array(abstract).

Kolchinsky teaches the above listed details of the independent claim 1, however, Kolchinsky does not teach: industrial plant and plurality of working units.

Schwenke et al. teaches :

- a. Industrial plant is taught as industrial process(abstract and col. 100 line 27);
- b. Plurality of working units is taught as robots(col. 8 line 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Kolchinsky with the teachings of Schwenke et al. because Schwenke et al. invention improves software for managing the design, simulation, implementation and maintenance of a manufacturing process.

As to claim 2, Kolchinsky teaches wherein feeding-in takes place in cycle-precise manner with respect to a PLC processing cycle is taught as providing files to PLC in an appropriate sequence for performing a complex operation(col. 2 lines 25-29).

As to claim 3, Kolchinsky teaches wherein the process data are filed in a real time data bank prior to feeding into the PLC is taught as a programmable logic matrix array(abstract).

As to claim 4, Schwenke et al. teaches wherein the process data are generated at the at least one field bus of the plant is taught as a sensor(col. 7 lines 22-23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Kolchinsky with the teachings of Schwenke et al. because Schwenke et al. invention improves software for managing the design, simulation, implementation and maintenance of a manufacturing process.

As to claim 6, Kolchinsky teaches wherein there is a cyclic and/or feed-synchronous processing of the process data by the PLC is taught as providing files to PLC in an appropriate sequence for performing a complex operation(col. 2 lines 25-29).

As to claim 7, Kolchinsky teaches wherein processing results are made available in an output area of the PLC is taught as processing results stored in matrix array(col. 3 lines 55-60).

As to claim 8, Kolchinsky teaches wherein processing results are filed in the real time data bank is taught as processing results stored in matrix array(col. 3 lines 55-60).

As to claim 9, wherein a data compression and/or a time coding takes place during filing

As to claim 10, Kolchinsky teaches wherein the process data stream to the PLC is controlled by means of a data stream controller with respect to data quantity, data rate, time quantity or the like is taught as data bus controller (abstract, col. 7 lines 13-15 and col. 9 lines 40-42).

As to claim 11, Kolchinsky teaches wherein the process data are fed in online or offline is taught as online in real time using programmable real time controller(col. 3 lines 6-8).

As to claim 12, Kolchinsky teaches wherein, as a function of software implemented in the PLC, the method is used for fault finding in the plant or PLC program, for optimizing or simulating production sequences or for synchronous or subsequent characteristic data generation is taught as finding fault col. 3 lines 3-30).

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As to claim 13, Kolchinsky teaches wherein historical process data and actual process data are combined for feeding into the PLC is taught as the input of supplied data and the stored data(abstract).

As to claim 14, Kolchinsky teaches wherein at least two programmable logic controls form a virtual machine by cascading connection of their input areas with their output areas, optionally via further data stream control devices is taught as two or more programmable processing elements (col. 3 lines 25-37).

11. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolchinsky in view of Schwenke et al. and further in view of Burshtein et al.

Kolchinsky and Schwenke et al. teach the claimed invention (claim 1) see paragraph 10 above.

As to claim 5, Burshtein et al. teaches wherein during their generation, the process data are provided with a time marker is taught as recording times of events(abstract).

As to claim 9, Burshtein et al. teaches wherein a data compression and/or a time coding takes place during filing is taught as recording times of events(abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Kolchinsky with the teachings of Burshtein et al. because Burshtein et al. incorporates a improved PLC that has the ability to deal with fast changes on discrete inputs which will help in real time finding and correcting of faults.



***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 15-20 and 24- 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolchinsky in view of Schwenke et al.

Kolchinsky teaches the claimed invention (claim 15) substantially as claimed including an apparatus for fault finding comprising:

- a. Apparatus for fault finding, optimization, simulation and information exchange in electrically controlled plants is taught as finding fault col. 3 lines 3-30);
- b. A real time information server for acquiring, archiving or transferring in each case specific historical process data with respect to the plant is taught as a programmable logic matrix array(abstract);
- c. A data stream controller for the flexible transfer of archived process data is taught as data bus controller (abstract, col. 7 lines 13-15 and col. 9 lines 40-42);
- d. At least one programmable logic control for controlling the plant is taught as virtual processor(col. 2 lines 20-21);
- d. Whose output data are again feed able into the PLC or some other PLC is taught as two or more programmable processing elements (col. 3 lines 25-37).

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Kolchinsky teaches the above listed details of the independent claim 15, however, Kolchinsky does not teach: such as industrial production plants and plurality of working units.

Schwenke et al. teaches :

a. Such as industrial production plants is taught as industrial process (abstract and col. 100 line 27);

b. Plurality of working units is taught as robots (col. 8 line 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Kolchinsky with the teachings of Schwenke et al. because Schwenke et al. invention improves software for managing the design, simulation, implementation and maintenance of a manufacturing process.

As to claim 16, Schwenke et al. teaches wherein the PLC is constructed as a software-based PLC (soft PLC) is taught as soft PLC (col. 71 line 62).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Kolchinsky with the teachings of Schwenke et al. because Schwenke et al. invention improves software for managing the design, simulation, implementation and maintenance of a manufacturing process.

As to claim 17, Kolchinsky teaches wherein a real time data bank is provided for archiving process data is taught as a programmable logic matrix array (abstract).

As to claim 18, Kolchinsky teaches wherein the data stream controller is constructed for time-precise location, for time forward and return reproduction, for accelerated and decelerated, as well as quantity-flexible reproduction of historical process data like is taught as data bus controller (abstract, col. 7 lines 13-15 and col. 9 lines 40-42).

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As to claim 19, Kolchinsky teaches wherein a process sequence of the plant can be implemented in time-independent manner with a random sequence speed, e.g. for fault finding, sequence optimization or for training purposes is taught as finding fault col. 3 lines 3-30).

As to claim 20, Kolchinsky teaches wherein the historical process data are organized in accordance with their acquisition sequence in a shift register and can be read and processed at any time by an analyzer is taught as a programmable logic matrix array(abstract).

As to claim 24, Kolchinsky teaches wherein with respect to its program processing cycle, the PLC is synchronized with the reproduction mode of the data stream controller is taught as data bus controller (abstract, col. 7 lines 13-15 and col. 9 lines 40-42).

As to claim 25, Kolchinsky teaches wherein there is at least one data acquisition unit in the field bus system of plant is taught as matrix array(abstract).

As to claim 26, Kolchinsky teaches wherein the data acquisition unit is constructed for buffer storage of I/O data transferred in field bus is taught as matrix array(abstract).

As to claim 27, Kolchinsky teaches wherein the buffer store is a shift register is taught as matrix array(abstract).

As to claim 28, Kolchinsky teaches wherein the data acquisition unit is connected by means of a local area network (LAN) to the real time information server is taught as a high speed communication bus with I/O modules connected(col. 10 lines 25-30).

As to claim 29, Kolchinsky teaches wherein at least the PLC and/or the real time information server are constructed as software components of a personal computer (PC) is taught as a virtual processor(abstract).

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As to claim 30, Kolchinsky teaches wherein a virtual machine is obtained by cascading connection of at least two programmable controls via their input and output areas, optionally via further data stream control devices is taught as two or more programmable processing elements (col. 3 lines 25-37).

14. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kolchinsky in view of Schwenke et al. and further in view of Burshtein et al.

Kolchinsky and Schwenke et al. teach the claimed invention (claim 15) see paragraph 13 above.

As to claim 21, Burshtein et al. teaches wherein the historical process data are provided with a time marker is taught as recording times of events(abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made or used to modify the teachings of Kolchinsky with the teachings of Burshtein et al. because Burshtein et al. incorporates a improved PLC that has the ability to deal with fast changes on discrete inputs which will help in real time finding and correcting of faults.

### ***Conclusion***

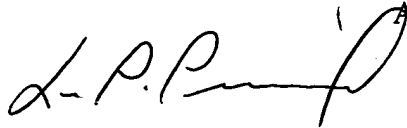
15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chad Rapp whose telephone number is (571)272-3752. The examiner can normally be reached on Mon-Fri 11:00-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard can be reached on (571)272-3749. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chad Rapp  
Examiner  
Art Unit 2125



cjr

**LEO PICARD**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2100**